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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/790,340	03/01/2004	James P. Gustafson	14913US02	9396
23446 7590 07/06/2009 MCANDREWS HELD & MALLOY, LTD 500 WEST MADISON STREET SUITE 3400 CHICAGO, IL 60661			EXAMINER WEI, ZHENG	
			ART UNIT 2192	PAPER NUMBER
			MAIL DATE 07/06/2009	DELIVERY MODE PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

**Office Action Summary****Application No.**

10/790,340

**Applicant(s)**

GUSTAFSON, JAMES P.

**Examiner**

ZHENG WEI

**Art Unit**

2192

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 16 March 2009.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-24 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-24 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SF/ICE)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

### **DETAILED ACTION**

#### ***Remarks***

1. This office action is in response to the amendment filed on 03/16/2009.
2. Claims 1 and 19 have been amended.
3. Claims 1-24 remain pending and have been examined.

#### ***Response to Arguments***

4. Applicant's arguments filed on 03/16/2009, in particular on pages 8-18, have been fully considered but they are not persuasive. For example:
  - At page 8, last paragraph, the Applicants submit that the amended Claim 1 requires a plurality of transform passes, wherein each transform pass is associated with its own memory bank order, and wherein each transform pass updates a plurality of memory banks in the associated memory bank order for that transform pass. Prior art Rao cannot anticipate claim 1 at least because Rao does not teach such a plurality of transform passes with each transform pass performed in a memory bank order associated with that particular transform pass.However, Examiner's position is that Rao still teaches such limitations as amended. It should be noted that "transform pass" as recited in the claim can be reasonable interpreted as an update step in bank by bank manner as in Rao (see for example, col.2, line 66-col.3, line 3, "converting the selected bank from the first code version to the second code version using the at least one

update instruction and repeating the receiving, selecting and converting in a bank by bank manner until each of the plurality of banks has been updated") and "a plurality of memory banks" can also be read as all memory banks including "original bank", "working bank" and "backup bank" which are involved in each transform pass updating circle in the specific order. (see Rao for example, Fig.3, steps 311->313->315->317->321->311 and related text). Therefore, Rao's each bank by bank update step (transform pass) to update plurality of banks including original bank, working bank and backup bank teaches the limitation as recited in claim 1. Moreover, for each bank selecting for update (transform pass), it is according to (associated) the specified bank order in update package (memory bank order) (see for example, col.2, line 41-42, "selecting may use a specified bank order at all other times")

- At page 16, first paragraph, the Applicants submit that a mere disclosure that a bank is encountered where a CRC value fails to match does not disclose a decision maker bank for each of the plurality of transform passes, as such a teaching does not teach associating a decision maker bank with a particular transform pass, or a plurality of transform passes, let alone a decision maker bank as claimed.

However, Examiner respectfully disagrees. As Rao disclosed, the point or bank of resuming updating is determined by a verification process to compute value for each bank is then to compare to the corresponding pre-computed value in a list of CRC values provided within the update package (see for example, col.8,

lines 28-62). Therefore, each memory bank of non-volatile memory is considered as a decision maker bank during updating process to determine if the previous bank update (transform pass) was interrupted (see for example, col.8, lines 28-62, "...the failed match indicates an anomaly or corruption, thus indicating the point at which the update activity should start or resume").

***Claim Rejections - 35 USC § 102***

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

6. Claims 1-24 are rejected under 35 U.S.C. 102(e) as being anticipated by Rao (Rao et al., US 7,082,549 B2).

Claim 1:

Rao discloses a mobile handset (see for example, Fig.1, item 143, "Mobile Handset" and related text) comprising:

- at least one of a firmware component and a soft-ware component (see for example, Fig.1, item 117 "Update Agent", item 115 "Bootstrap" and related text);

- an update agent capable of updating the at least one of a firmware component and a software component employing an update process that comprises a plurality of transform passes, wherein each transform pass is associated with its own memory bank order, and wherein each transform pass updates a plurality of memory banks in the associated memory bank order for that transform pass (see for example, Fig.2, step 207-223 and related text; also see, col.2, lines 62-65, "...selecting one of the plurality of banks using, ...a specified bank order" and col.5 line 61- col.6, lines 9, "The bank order specification may be used by update agent 117 to direct the sequence of the update of the various banks of memory such as bank 1 119 through bank N 131, as necessary, in the non-volatile memory 111"; also see Fig.3, step 311-321 and related text); and
- the update agent executing at least one of the plurality of transform passes (update steps) in a fault-tolerant mode (see for example, Fig.1, "Bank 1...N", Fig.3 about updating process; also see Fig.2, step 215 "Fault-tolerant Update" and related text).

Claim 2:

Rao further discloses the mobile handset according to claim 1 wherein the update agent executes each of the plurality of transform passes in a fault-tolerant mode (see for example, Fig.3, steps 307-323, "Working Bank", "Backup Bank" and related text).

Claim 3:

Rao also discloses the mobile handset according to claim 1 wherein the update process comprises a pre-processing pass (see for example, Fig.3, step 311, "Copy Original Bank to Working Bank" and related text) and an update pass (see for example, Fig.3, step 313, "Update Working Bank" and related text).

Claim 4:

Rao further discloses the mobile handset according to claim 1 wherein the update agent is capable of determining a point of interruption of the update process, so as to restart the update process from the point of interruption on a subsequent invocation of the update process (see for example, Fig.1, step 213 "Determine Where to resume" and related text; also see Fig.5, step 509, "Determine Starting/Resumption Point" and related text).

Claim 5:

Rao also discloses the mobile handset according to claim 4 wherein the update agent is capable of efficiently determining whether a previous invocation of the update process was interrupted during a pre-processing pass or during an update pass (see for example, Fig.1, step 213 "Determine Where to resume" and related text; also see Fig.5, step 509, "Determine Starting/Resumption Point" and related text; further see col.8, lines 51-54, "the point at which update processing

should begin or resume may be determined using a verification process in which a CRC value is computed for each bank of non-volatile memory being updated.”).

Claim 6:

Rao further discloses the mobile handset according to claim 1 wherein the update agent is capable of efficiently determining which of the plurality of transform passes was interrupted during a previous execution of the update process (see for example, col.8, lines 51-54, “the point at which update processing should begin or resume may be determined using a verification process in which a CRC value is computed for each bank of non-volatile memory being updated.”).

Claim 7:

Rao also discloses the mobile handset according to claim 1 wherein the mobile handset further comprises:

- a plurality of memory banks (see for example, Fig.1, “Bank 1...N” and related text);
- a set of special signatures comprising at least one special signature corresponding to each of the plurality of transform passes; the at least one special signature being associated with the last of the memory banks that is updated in the corresponding transform pass (see for example, col.8, lines 51-54, “the point at which update processing should begin or resume may be



- determined using a verification process in which a CRC value is computed for each bank of non-volatile memory being updated.");
- at least a subset of the plurality of memory banks being modified in each of the plurality of transform passes (see for example, Fig.3, steps 307-323 and related text); and
  - the update agent capable of determining which of the plurality of transform passes was interrupted during a previous execution of the update process (see for example, Fig.5, step 509, "Determine Starting /Resumption Point" and related text).

Claim 8:

Rao further discloses the mobile handset according to claim 7 wherein the update agent determines the transform pass that was interrupted during a previous execution of an update process, and the specific one of the plurality of memory banks that was last to be successfully updated, in order to resume the update process (see for example, col.8, lines 54-62, "The comparison continues in a bank-by-bank fashion through the list until a bank of non-volatile memory is encountered where the computed CRC value fails to match the value in the list for that bank. The failed match indicated an anomaly or corruption, thus indicating the point at which the update activity should start or resume").

Claim 9:

Rao further discloses the mobile handset according to claim 8 wherein the update agent compares, in a transform pass order, each special signature from the set of special signatures to a signature computed for the last bank to be updated in the corresponding transform pass, until a mismatch is detected, the mismatch indicating a point of interruption during a previous update attempt (see for example, col.8, lines 54-62, "The comparison continues in a bank-by-bank fashion through the list until a bank of non-volatile memory is encountered where the computed CRC value fails to match the value in the list for that bank. The failed match indicated an anomaly or corruption, thus indicating the point at which the update activity should start or resume").

Claim 10:

Rao also discloses the mobile handset of claim 7 wherein the special signature comprises one of a cyclic redundancy check (CRC) value and an MD5 hash value (see for example, col.8, lines 51-53, "update processing should begin or resume may be determined using a verification process in which a CRC value is computed; also see col.10, lines 51-53, "a CRC value (or a MD5 checksum, etc) is computed to verify the results of the update operations on that bank").

Claim 11:

Rao discloses a mobile handset comprising a plurality of memory banks containing at least one of a firmware and a plurality of software components, the

mobile handset comprising (see for example, Fig.1 "Bank 1...N", item 111 "Non-Volatile Memory with Firmware/Software" and related text):

- an update package comprising a difference information (see for example, col.6, lines 10-27, the update package contains "update instructions" and "predetermined value for the bank being updated");
- an update agent capable of updating at least a portion of the at least one of firmware and a plurality of software components, the update agent employing an update process that comprises a plurality of transform passes, wherein each transform pass is associated with its own memory bank order, wherein each transform pass update the plurality of memory banks in associated memory bank order for that transform pass (see for example, Fig.1, item 117, "Update Agent" and related text; also see, Fig.2, step 213, "Determine Where to resume", step 215 "Fault-tolerant Update" and related text and also see, col.2, lines 62-65, "...selecting one of the plurality of banks using, ...a specified bank order" and col.5 line 61- col.6, lines 9, "The bank order specification may be used by update agent 117 to direct the sequence of the update of the various banks of memory such as bank 1 119 through bank N 131, as necessary, in the non-volatile memory 111"); and
- a set of decision maker banks identified within the plurality of memory banks, one decision maker bank for each of the plurality of transform passes, the set of decision maker banks used to determine which of the plurality of transform passes was interrupted, in order that the update process may be

subsequently reattempted beginning with the interrupted transform pass (see for example, col.8, lines 28-62, "The comparison continues in a bank-by-bank fashion through the list until a bank of non-volatile memory is encountered where the computed CRC value fails to match the value in the list for that bank."; also see col.6, lined 61-col.6, line 9 about "bank order specification").

Claim 12:

Rao further discloses the mobile handset of claim 11 wherein the update package comprises information identifying the set of decision maker banks (see for example, col.6, lines 10-27, the update package contains "update instructions" and "predetermined value for the bank being updated"; also col.8, lines 54-56, "The computed value for each bank is then compared to the corresponding pre-computed value in a list of the firmware/software").

Claim 13:

Rao also discloses the mobile handset of claim 11 wherein the difference information comprises a set of executable instructions for converting a first version of the at least a portion of the at least one of firmware and a plurality of software components, to a second version of the at least a portion of the at least one of firmware and a plurality of software components (see for example, Fig.6, steps 607-623 and related text).

Claim 14:

Rao further discloses the mobile handset of claim 11 wherein the update agent is capable of:

- i) computing a signature for a decision maker bank in the set of decision maker banks, beginning with the decision maker bank for the first transform pass in the transform pass order (see for example, col.8, lines 41-62, "CRC value is computed" and related text);
- ii) comparing the computed signature to a corresponding predetermined signature for that transform pass, the predetermined signature contained in the update package, to determine whether a match exists (see for example, col.8, lines 41-62, "compared to the corresponding pre-computed value" and related text) ;
- iii) repeating (i) and (ii) for the next transform pass in the transform pass order, if a match exists (see for example, col.8, lines 41-62, "The comparison continues in a bank by bank fashion through the list until..."); and
- iv) identifying the current transform pass as a point of interruption, if a match does not exist (see for example, col.8, lines 41-62, "The failed match indicates an anomaly or corruption, thus indicating the point at which the update activity should start or resume.").

Claim 15:

Rao also discloses the mobile handset of claim 14 wherein:

the update package comprises a predetermined checksum for each memory bank in the subset of the plurality of memory banks for the interrupted transform pass (see for example, col.8, lines 41-62, "corresponding pre-computed value in a list of CRC values provided within the update package.")

Claim 16:

Rao further discloses the mobile handset of claim 14 wherein the update agent is capable of:

- initiating a recovery from the point of interruption in the transform pass order; and (see for example, Fig.6, step 609, "Determine Starting/Resumption Point" and related text)
- determining the first bank in the predetermined bank order for the interrupted transform pass for which a mismatch between a computed checksum and a predetermined checksum for a memory bank in the predetermined bank order for the interrupt transform pass occurs (see for example, Fig.6, steps 611-613 and related text).

Claim 17:

Rao further discloses the mobile handset of claim 16 wherein the computed checksum and the predetermined checksum comprise a cyclic redundancy check

(CRC) value (see for example, col.8, lines 51-53, "update processing should begin or resume may be determined using a verification process in which a CRC value is computed").

Claim 18:

Rao also discloses the mobile handset of claim 16 wherein the computed checksum and the predetermined checksum comprise a MD5 hash value (see for example, col.10, lines 51-53, "a CRC value (or a MD5 checksum, etc) is computed to verify the results of the update operations on that bank").

Claim 19:

Rao discloses a method for recovering from interruption of a fault-tolerant process of updating a mobile handset comprising a plurality of memory banks from a first firmware version to a second firmware version, the update process comprising a plurality of transform passes and having a transform pass order, each of the plurality of transform passes performing a transform upon the plurality of memory banks in a memory bank order, the method comprising:

- determining as a recovery transform pass, one of the plurality of transform passes interrupted during the update process, wherein each transform pass is associated with its own memory bank order, and wherein each transform pass updates a plurality of memory banks in the associated memory bank order for that transform pass (see for example, Fig.6, step 609, "Determine

Starting /Resumption Point", steps 611-621, "original bank", "working bank", "backup bank" and related text; also see, col.2, lines 62-65, "...selecting one of the plurality of banks using, ...a specified bank order" and col.5 line 61-col.6, lines 9, "The bank order specification may be used by update agent 117 to direct the sequence of the update of the various banks of memory such as bank 1 119 through bank N 131, as necessary, in the non-volatile memory 111");

- determining as a recovery memory bank, one of the plurality of memory banks in the associated memory bank order for the interrupted transform pass during which update processing was interrupted (see for example, Fig.6, step 611, "Copy Original Bank to Working Bank" and related text); and
- invoking the update process by performing an update of the recovery memory bank using the recovery transform pass (see for example, Fig.6, step 613, "Update Working Bank using Backup Bank" and related text).

Claim 20:

Rao further discloses the method according to claim 19 wherein determining a recovery transform comprises:

- employing one of the plurality of memory banks as a decision maker bank for each of the plurality of transform passes, each of the decision maker banks identifying the last bank of the memory bank order for the corresponding one of the plurality of transform passes to be updated, the decision maker banks



- retrievable from an update package (see for example, col.8, lines 41-62, "The comparison continues in a bank by bank fashion through the list until..."); and
- determining an interrupted transform pass in the transform pass order, based upon the decision maker banks for the plurality of transform passes in the fault-tolerant update process (see for example, col.8, lines 41-62, "The comparison continues in a bank-by-bank fashion through the list until a bank of non-volatile memory is encountered where the computed CRC value fails to match the value in the list for that bank. The failed match indicates an anomaly or corruption, thus indicating the point at which the update activity should start or resume.").

Claim 21:

Rao further discloses the method according to claim 20 wherein determining an interrupted transform pass comprises:

- i) computing a checksum of a decision maker bank, beginning with the first transform pass in transform pass order (see for example, col.8, lines 41-62, "CRC value is computed" and related text);
- ii) comparing the computed checksum to a predetermined checksum retrieved from the update package to determine whether the computed checksum matches the predetermined checksum exists (see for example, col.8, lines 41-62, "compared to the corresponding pre-computed value" and related text);
- iii) repeating (i) and (ii) for the decision maker bank of each of the subsequent

transform passes in the transform pass order, if the computed and the predetermined checksums for a decision maker bank match (see for example, col.8, lines 41-62, "The comparison continues in a bank by bank fashion through the list until..."); and

iv) Identifying as interrupted, a transform pass for which the computed and predetermined checksums for a decision maker bank do not match (see for example, col.8, lines 41-62, "The failed match indicates an anomaly or corruption, thus indicating the point at which the update activity should start or resume.").

Claim 22:

Rao also discloses the method according to claim 21 wherein the computed checksum comprises one of a cyclic redundancy check (CRC) value and an MD5 hash value (see for example, col.8, lines 51-53, "update processing should begin or resume may be determined using a verification process in which a CRC value is computed; also see col.10, lines 51-53, "a CRC value (or a MD5 checksum, etc) is computed to verify the results of the update operations on that bank").

Claim 23:

Rao further discloses the method according to claim 20 wherein the update package comprises a set of executable instructions for converting a first firmware

version to a second firmware version (see for example, Fig.6, steps 611-613 and related text).

Claim 24:

Rao further discloses the method according to claim 19 wherein the method is employed during both an initial update attempt and during recovery from an interrupted update attempt (see for example, Fig.6, step 609, "Determine Starting/Resumption Point" and related text).

### ***Conclusion***

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Applicant's amendment necessitated additional explanation presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be

calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Zheng Wei whose telephone number is (571) 270-1059 and Fax number is (571) 270-2059. The examiner can normally be reached on Monday-Thursday 8:00-15:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tuan Q. Dam can be reached on (571) 272-3695. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Any inquiry of a general nature of relating to the status of this application or proceeding should be directed to the TC 2100 Group receptionist whose telephone number is 571- 272-1000.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Z. W./  
Examiner, Art Unit 2192

/Tuan Q. Dam/  
Supervisory Patent Examiner, Art Unit 2192